REMARKS

Formal Matters

In the specification, the paragraph at page 5, lines 13-19 have been amended to correct minor editorial problems.

Claims 20-73 remain in this application. Claims 31-73 have been withdrawn as the result of an earlier restriction requirement. Claims 25 and 27 are amended. No claim is allowed. No new matter is added by the amendments.

Support for the amendments is found throughout the specification, such as at page 5, lines 15-19 and page 15, lines 13-25.

In view of the Examiner's earlier restriction requirement, applicant retains the right to present withdrawn claims 31-73 in a divisional application and/or subsequent prosecution.

The Rejection Under 35 U.S.C. § 101 and § 112 First Paragraph:

Claims 20-30 are rejected under 35 U.S.C. § 101, as allegedly lacking a specific, substantial and credible utility.

Specifically, the Examiner asserts that the specification does not disclose a specific biological role for the claimed PF4AR polypeptide, or its significance to a particular disease, disorder or biological process which one could manipulate for a desired clinical effect. The Examiner further asserts that Applicants characterization of the invention is incomplete because because they have failed to identify a physiological process which is influenced by the activation or inhibition of the putative PF4A receptor protein. The Examiner further asserts that if one can not predict the effects that the administration of a ligand of the putative receptor of the invention is going to have on an organism, then it is unclear as to what practical benefit is derived by the public from the identification of that ligand.

The Examiner further recites *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sup. Ct, 1966) for the tenet that an invention must have either an immediately obvious or fully disclosed "real world" utility. The Examiner analogizes with the facts of *Brenner* in which a compound structurally analogous to other compounds known to possess anti-cancer activity, does not meet the requirement of utility under 35 U.S.C. § 101 itself, for a similar anti-cancer activity, absent evidence of that utility.

In response, Applicants respectfully disagree that the claimed PF4AR polypeptides lack a specific, substantial and credible utility.

The Utility Guidelines Examination Guidelines, 66 Fed. Reg. 1092 (2001), M.P.E.P. § 2107, "Utility Guidelines", which reflects the current state of the law of utility, indicates that an invention will comply with the utility requirement of 35 U.S.C. § 101 if it has at least one asserted "specific, substantial and credible" or a "well established utility." Under the Utility Guidelines, a utility is "specific" when it is particular to the subject matter claimed.

Under M.P.E.P. § 2107.01(I), a utility is "substantial" if "[A]ny reasonable use that an applicant has identified for the invention that can be viewed as providing a public benefit should be accepted as sufficient." Specifically, the following instruction has been provided to Examiners: "If the applicant has asserted that the claimed invention is useful for any particular practical purpose . . . and the assertion would be considered credible by a person of ordinary skill in the art, do not impose a rejection based on lack of utility." M.P.E.P. § 2107(II)(B)(1).

The Examiner reliance upon *Brenner* as providing directly analogous facts to those in the present instance is misplaced. In *Brenner*, the U.S. Supreme Court reversed the holding of the Court of Customs and Patent Appeals ("CCPA"), and thereby agreed with the Board of Appeals that the "usefulness of a product cannot be presumed merely because it happens to be closely related to another compound which is shown to be useful." In *Brenner*, in an attempt to provoke an interference, applicant Manson had applied for a patent to a process for creating steroids about two years after the filing, and a few months after the issuance of a similar process by another. The Examiner rejected Manson's claims for failure to disclose any utility for the chemical

compound produced by the claimed process, and this defect was not cured by submission of contemporaneous evidence of tumor-inhibiting effects of structurally similar ("homologous") compounds. *Brenner* at 690. Moreover, the Supreme Court also pointed out that Manson himself recognized that any presumption of similar activity by homologous compounds has been challenged because of known unpredictability of compounds in the steroid field. *Brenner* at 694. In finding that utility must always be present, the Supreme Court expressly overruled the CCPA's holding that "where a claimed process produces a known product it is not necessary to show utility for the product, so long as the product is not alleged to be detrimental to the public interest." *Brenner* at 691.

Turning to the case at hand, Applicants claim PF4A polypeptides, which is a composition of matter, not a process for manufacture. Also, it is simply not the case that Applicants have failed to disclose any utility. Applicants have specifically disclosed that the claimed PF4AR polypeptides have proinflammatory utility. For example, page 1, line 26 to page 2 line 3 indicate that IL-8 is a member of a class of proinflammatory cytokine known as the platelet factor 4 superfamily (PF4A). The use of antagonist anti-PF4AR antibodies as anti-inflammatory agents (and thus, by inference the use of PF4AR polypeptides themselves as proinflammatory agents) is further provided at page 49, lines 22-23. Thus, the present application differs from the facts of *Brenner* in that the initial suggestion of utility is present in the application itself, instead of through inference by contemporaneous evidence.

The Examiner has further indicated that the PF4AR polypeptide is structurally analogous to G protein-coupled receptors (GPCR). Office Action, page 6. Applicants respectfully submit, that that the claimed PF4AR polypeptides are not only members of the GPCR family, but is a member of the PF4AR (at the time of filing also known as the IL-8R) family, a specific subset of GPCR's which play key roles in regulating the inflammatory response.

The nature of the PF4AR family as mediators of inflammation was well appreciated and well known at the time of filing. Thus, once it was determined that the claimed PF4AR polypeptides were members of the same family as IL-8R, their utility as regulators of

inflammation would have been immediately apparent. The Examiner's attention is directed to the enclosed affidavit from Dr. James Lee, specifically to paragraphs 5 and 8 in which Dr Lee first presents two review articles verifying that the inflammatory properties of chemokines was known at the time of filing, and then attests that one of ordinary skill, based on Applicants's disclosure would recognize that the PF4AR polypeptides disclosed in the specification, and variants thereof, would be useful to regulate inflammation. Furthermore, the discussion of inflammatory disorders on page 14, lines 7-24, as well as the suggestions on pages page 1, line 26 to page 2 line 3, and page 49, lines 22-23 demonstrate Applicants' recognition of the role in inflammation that such molecule play as well as their utility as targets for the treatment of inflammation.

Applicants' recognition of the significance of the connection between the PF4AR polypeptides of the invention in general, and specifically the CXCR-5 polypeptides, in inflammation has been verified and corroborated as the state of the art has advanced subsequent to the filing date of the subject invention. As discussed in paragraphs 6 and 7 of the enclosed affidavit from Dr. Lee, the PF4AR polypeptides, now termed CXC and CC chemokines, are now understood to control inflammation through the regulation of leukocyte trafficking. Moreover, CXCR-5 has been identified specifically as being upregulated in the synovial tissue of patients suffering from the inflammatory disorder rheumatoid arthritis. This is actual experimental evidence that corroborates and verifies Applicants' disclosure of utility for the claimed PF4AR polypeptides in regulating inflammation, and that this utility is specific, credible and substantial.

Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 29-30 under 35 U.S.C. § 101.

The Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 20-30 are rejected under 35 U.S.C. § 112, second paragraph, allegedly as being vague and indefinite.

Specifically, the Examiner alleges that it is unclear how the limitation "the amino acid sequence of Figure 5" differs from "the PF4AR amino acid sequence of Figure 5"

In response, Applicants respectfully submit that Applicants the term "PF4AR" reflects the fact that the claimed polypeptides are members of the platelet factor 4 superfamily. It is a tag or label that places identity or association to the structural term SEQ ID NO:6. It is an aid to the reader that facilitates an understanding, but does not define the metes and bounds of the claimed subject matter. Given that the term is used consistently throughout the claims, and as a term in the preamble, it is not used as, and it not intended to be interpreted as an additional limitation as the Examiner presently suggests. It is suggested that while the each expression claimed identical subject matter, the term "the PF4AR amino acid sequence of Figure 5" claims more immediately recognizable subject matter than the term "the amino acid sequence of Figure 5." The latter would require one to further check the specification for the identity of the claimed sequence, whereas the former might be more immediately recognizable by those of skill in the art.

Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 20-30 under 35 U.S.C. § 112, Second Paragraph.

Rejection Under 35 U.S.C. § 102(b) (cited references)

Claims 25 and 27 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kobilka *et al., Science* 238: 650-656 (1987). Specifically, the Examiner asserts that as an "extracellular domain" can correspond to as little as a single amino acid, that such claims encompass any and all polypeptides of a single amino acid residue, such as the receptor polypeptides identified in Kobilka *et al.*

In response, Applicants amendment has rendered the rejection moot. An "extracelluar segment" is defined at page 5, lines 15-19 and page 15, lines 13-25 as being specifically defined by the recited residues and comprising more than one amino acid residue.

Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 25 and 27 under 35 U.S.C. § 102(b).

SUMMARY

Claims 20-30 are pending in the application.

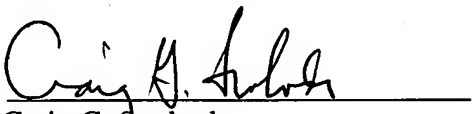
If in the opinion of the Examiner, a **telephone conference** would expedite the prosecution of the subject application, the Examiner is **strongly encouraged** to call the undersigned at the number indicated below.

This response/amendment is submitted with a transmittal letter and petition for a three-month extension of time and fees. In the unlikely event that this document is separated from the transmittal letter or if fees are required, applicants petition the Commissioner to authorize charging our Deposit Account 07-0630 for any fees required or credits due and any extensions of time necessary to maintain the pendency of this application.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
GENENTECH, INC.

Date: April 14, 2006

By: 

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